Out-of-Pocket Spending for Deliveries and Newborn Hospitalizations Among the Privately Insured

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Childbirth is the most common reason for hospitalization in the United States.[1] Concern is growing regarding the high and rising financial burden of childbirth for privately insured families.[2] Previous studies assessing this burden have focused on out-of-pocket spending for maternal care, including hospitalizations for delivery.[2] However, there are no recent national data on out-of-pocket spending across the childbirth episode, including both deliveries and newborn hospitalizations. We estimated this spending using national commercial claims data.

METHODS

We analyzed 2016–2019 data from Optum's deidentified Clinformatics Data Mart, which includes 12 million annual privately insured enrollees in all states. The University of Michigan exempted this study from human subjects review.

The unit of analysis was a "childbirth episode," defined as a delivery linked to ≥1 newborn hospitalization covered by the same family plan. Deliveries were hospitalizations for female patients aged 12 to 55 years that began in 2016–2019 and had ≥1 claim with a birth-related diagnosis, procedure, or revenue code. These codes were based on the Pregnancy Identification Algorithm, which was developed by translating validated *International Classification of Diseases, Ninth Revision, Clinical Modification* codes for identifying pregnancy episodes to *International Classification of Diseases, 10th Revision, Clinical Modification* (ICD-10-CM).[3] Newborn hospitalizations were hospitalizations for patients born in 2016–2019 that had ≥1 claim with a newborn-related diagnosis, procedure, or revenue code. These hospitalizations began on or after the admission date of deliveries but before discharge. Episodes only involved 1 newborn hospitalization unless multiple births occurred (eg, twins). Families could account for multiple episodes.

Out-of-pocket spending equaled the sum of deductibles, coinsurance, and copayments. We adjusted this spending to 2019 dollars using the Consumer Price Index for All Urban Consumers.[4] For each family, we calculated out-of-pocket spending for the delivery and newborn hospitalization(s); the sum of these quantities was "total out-of-pocket spending." We calculated mean total out-of-pocket spending and the proportion of episodes with total out-of-pocket spending exceeding $5000 and $10 000.

We conducted subgroup analyses among episodes involving cesarean birth or neonatal intensive care. All differences between subgroups were significant owing to large sample sizes; consequently, confidence intervals are not reported.

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Dr Chua conceptualized and designed the study, collected the data, analyzed and interpreted the data, drafted the initial manuscript, and reviewed and revised the manuscript; Drs Fendrick and Conti conceptualized and designed the study, analyzed and interpreted the data, and reviewed and revised the manuscript; Dr Moniz conceptualized and designed the study, analyzed and interpreted the data, reviewed and revised the manuscript, and provided study supervision; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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RESULTS

Analyses included 398 410 episodes. Deliveries in these episodes linked to 404 449 newborn hospitalizations. Mean age of mothers was 32.0 years (SD 4.6); 116 958 (29.4%) episodes were covered by high-deductible health plans (those with a health reimbursement arrangement or health savings account).

Among the 398 410 episodes, mean out-of-pocket spending for the delivery and newborn hospitalization(s) was $2281 (SD $1706) and $788 ($1654), respectively. Mean total out-of-pocket spending was $3068 ($2579) and comprised of deductibles ($1292, 42.1%), coinsurance ($1711, 55.8%), and copayments ($66, 2.2%). Spending exceeded $0 for 377 388 (95.0%) episodes and exceeded $5000 and $10 000 for 67 792 (17.1%) and 4052 (1.0%) episodes (Table 1).

Among 136 571 (34.4%) episodes involving cesarean birth and 23 360 (5.9%) involving neonatal intensive care, mean total out-of-pocket spending was $3389 ($2957) and $4969 ($5871) (Fig 1). Among the 23 360 episodes involving neonatal intensive care, 2052 (8.8%) had total out-of-pocket spending exceeding $10 000.

DISCUSSION

During 2016–2019, privately insured families paid ~$3000 out-of-pocket for maternal and newborn hospitalizations. For 1 in 6 families, out-of-pocket spending exceeded $5000. Out-of-pocket spending was driven by deductibles and coinsurance and was higher when cesarean birth occurred. When neonatal intensive care was required, out-of-pocket spending averaged $5000 and exceeded $10 000 for ~1 in 11 families.

TABLE 1 Out-of-Pocket Spending for Childbirth Episodes Among Privately Insured Families, 2016–2019 Optum Clinformatics Data Mart

	All Childbirth Episodes	Episodes With Cesarean Birth[a]	Episodes With Neonatal Intensive Care[b]
Sample size			
No. episodes[c]	397 410	136 571	23 360
No. newborn hospitalizations linked to deliveries	404 449	141 996	25 491
Mean out-of-pocket spending for delivery (SD), $			
Total	2281 (1706)	2351 (1826)	2038 (1872)
Deductible	1042 (1363)	962 (1330)	795 (1236)
Coinsurance	1177 (1109)	1322 (1260)	1171 (1360)
Copayment	61 (242)	67 (263)	72 (269)
Mean out-of-pocket spending for newborn hospitalization(s) (SD), $			
Total	788 (1654)	1038 (1984)	2931 (4968)
Deductible	249 (636)	325 (742)	1124 (1424)
Coinsurance	534 (1446)	705 (1732)	1760 (4709)
Copayment	5 (77)	7 (97)	47 (250)
Mean total out-of-pocket spending (SD), $			
Total	3068 (2579)	3389 (2957)	4969 (5871)
Deductible	1292 (1577)	1288 (1607)	1919 (2266)
Coinsurance	1711 (2049)	2027 (2441)	2931 (5377)
Copayment	66 (269)	74 (302)	119 (465)
No. episodes with total out-of-pocket spending exceeding $5000 (%)	67 792 (17.1)	30 939 (22.7)	10 253 (43.9)
No. episodes with total out-of-pocket spending exceeding $10 000 (%)	4052 (1.0)	2265 (1.7)	2052 (8.8)

[a] Defined as episodes in which the delivery was associated with at least 1 claim for cesarean delivery (those with Current Procedural Terminology (CPT) codes 01961, 01963, 01968, 01969, 58611, 59510, 59514, 59515, 59525, 59618, 59620, 59622, or 99360; and those with ICD-10-CM procedure codes 10D00Z0-10D00Z2).

[b] Defined as episodes in which the linked newborn hospitalization(s) was associated with at least 1 claim for neonatal intensive care (those with revenue code 0174 or CPT codes 96468-96469).

[c] A childbirth episode comprised the delivery and 1 or more linked newborn hospitalizations. Deliveries and newborn hospitalizations that began in 2019 could end in 2020. To identify deliveries, we used a modified list of birth-related diagnosis and procedure codes included in a published algorithm,[3] as well as labor and delivery revenue codes. Birth-related ICD-10-CM diagnosis codes were 01002, 01012, 01022, 01032, 01042, 01092, 0114, 01204, 01214, 01224, 0134, 01404, 01414, 01424, 01494, 0164, 02402, 02412, 02432, 024420-024429, 02482, 02492, 0252, 02662, 02672, 04202, 04212, 04292, 0601xxx-0602xxx, 061xxxx-082xxxx, 08802, 08812, 08822, 08832, 08882, 09802, 09812, 09822, 09832, 09842, 09852, 09862, 09872, 09882, 09892, 09902, 09912, 099214, 099214, 099284, 099314, 099324, 099334, 099344, 099354, 09942, 09952, 09962, 09972, 099814, 099824, 099834, 099844, 09A12, 09A22, 09A32, 09A42, 09A52, Z37xx-Z38xx (except Z371, Z374, Z377). CPT codes were 01960, 01961, 01962, 01963, 01967, 01968, 01969, 58611, 59300, 59400, 59409, 59410, 59414, 59510, 59514, 59515, 59525, 59610, 59612, 59614, 59618, 59620, 59622. ICD-10-CM procedure codes were 0Q820ZZ, 0Q823ZZ, 0Q824ZZ, 0Q830ZZ, 0Q833ZZ, 0Q834ZZ, 0U7C7ZZ, 0U7C8DZ, 0W8NXZZ, 10900ZA, 10900ZC, 10903ZA, 10903ZC, 10904ZA, 10904ZC, 10907ZA, 10907ZC, 10908ZA, 10908ZC, 10D00Z0-10D00Z8, 10D17Z9, 10DA7ZZ, 10D18Z9, 10DA8ZZ, 10E0XZZ, 10S07ZZ, 10S0XZZ. Revenue codes were 0720-0722, 0724, 0729. To identify newborn hospitalizations, we used ICD-10-CM diagnosis codes Z37xx-Z38xx (except Z371, Z374, Z377); CPT codes 99360, 99460-99465, 99468-99469, 99477-99480; and revenue codes 0170-0174.

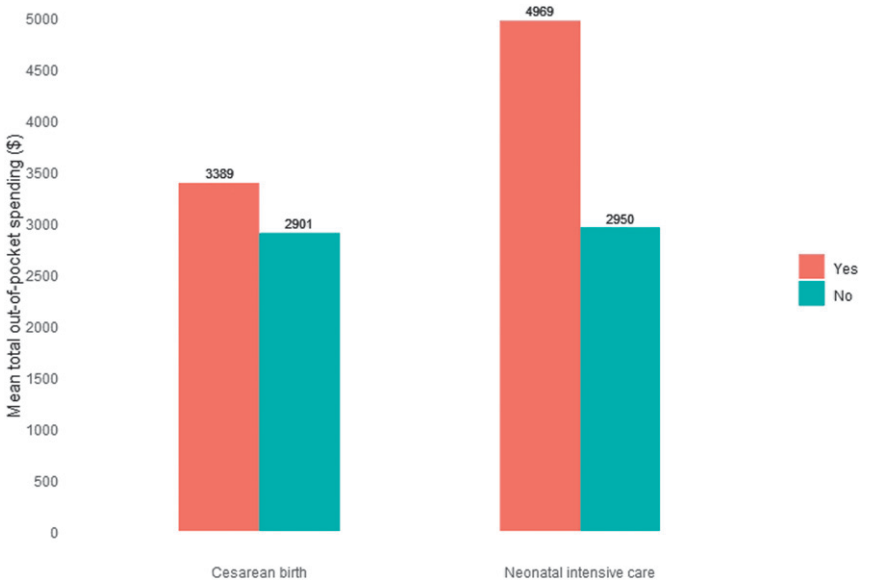

FIGURE 1
Mean total out-of-pocket spending among childbirth episodes involving cesarean birth and neonatal intensive care, 2016–2019. OptumInsights Clinformatics Data Mart.

Because details on plan benefit design were unavailable, the generalizability of findings to all privately insured Americans is unclear. However, the proportion of childbirth episodes covered by high-deductible health plans in this study is consistent with the prevalence of such plans among Americans with employer-sponsored insurance.[5]

Economic theory suggests substantial cost-sharing is justified when care is unnecessary.[6] Childbirth hospitalizations, however, are not unnecessary. To avoid imposing undue financial burden on families, private insurers should improve childbirth coverage. An incremental step would be providing first-dollar coverage of deliveries and newborn hospitalizations before deductibles are met. Ideally, however, insurers would waive most or all cost-sharing for these hospitalizations, consistent with the approach taken by Medicaid programs and many developed countries.[7]

Findings have clinical implications. Before delivery, clinicians should counsel privately insured families to understand their childbirth benefits and to save money when possible if large bills are expected. After delivery, clinicians should screen families for financial hardship, particularly families experiencing resource-intensive hospitalizations, such as those involving neonatal intensive care.

ABBREVIATION

ICD-10-CM: International Classification of Diseases, 10th Revision, Clinical Modification

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